



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/809,004

03/25/2004

Shoupu Chen

87976SLP

7773

70523

7590

08/25/2008

Carestream Health, Inc.  
Patent Legal Staff  
150 Verona Street  
Rochester, NY 14608

EXAMINER

LAMPRECHT, JOEL

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

08/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,004	<b>Applicant(s)</b> CHEN ET AL.	
	<b>Examiner</b> JOEL M. LAMPRECHT	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/4/08 has been entered.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-10, and 29-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Regarding claims 1-10 and 30 the claims fail to include a useful, concrete, tangible result. Regarding claim 29, the claim fails to include a sufficient tie to an apparatus, and fail to include a useful, concrete, tangible result.

### ***Claim Objections***

Claims 2-9, 14, 16, 18, 19-23, and 26 are objected to because of the following informalities: Regarding claim 2 (and analogous step of claim 18), it is unclear how a mask "gathers image statistics" as the mask is disclosed as the portion of the image after an opening process, rather than a function used to acquire image statistics. Regarding claims 4 and 20, "the threshold image" lacks antecedent basis". Regarding

claims 14 and 16 it is unclear what additional step in the method has been set forth.

Regarding claim 22 "mask B" lacks antecedent basis. Regarding claim 23, it is unclear how the dependency from claims 22 and 11 sets for the formation of masked areas, As it is not explicitly claimed. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le (US 6,608,942) in view of Yokoi et al (US 2003/0023150 A1) and in further view of Ravkin (US 6,259,807 B1). Le discloses a digital image processing method comprising

acquiring image data (Col 2 Lines 5-40), detecting discontinuities (Col 2 Line 12-55), preserving them (Col 9 Line 29-62), and adjusting the exposure of the image with the discontinuity preserved (Col 12 Line 55 – Col 13 Line 60), including thresholding the images (Col 12 Line 35-60), forming multiple masks from a thresholded image (Col 14 Line 10-65), and adjusting the properties (Col 15 Line 45 – Col 16 Line 42), including intensity variations, extremes, and contrast via those masks (Col 16 Line 49 – Col 17 Line 48). The development of those adjustments includes the creation of a smoothing band across a boundary (Col 17 Line 48 – Col 18 Line 65), and using gradients for color components to perform morphological filtering operations (Col 12 Line 17 – Col 13 Line 67). Additionally, Le uses masking alongside of filters to remove or preserve discontinuities from the images selectively (Col 14 Line 15-24), selectively intensify regions of the image based on threshold intensities on a scale (Col 16 Line 28 – Col 17 Line 25), and smoothing based on a selective width around a boundary line where intensity, and gradients thereof, provide a basis for smoothing (Col 8 Line 25 – Col 10 Line 20). Furthermore, the disclosure of Le provides a notification of a discontinuity to a remote site (Col 6 Line 40 – Col 7 Line 25), and an examination bundle processing system for transmitting data from the processed images to an external source or to a display means (Col 7 line 10-25).

Le does not disclose the acquisition of images from an in vivo camera system, or a wireless communication link between the image processing system and the in vivo camera system coupled to a Personal Digital Device or provide a specific step-by-step mask generation and modification in such simple terms. Attention is then paid to the

secondary reference by Yokoi et al, which discloses a method for acquiring in vivo image data (0062), wirelessly transferring that data to a personal digital device and then to a computer for processing (0073). Additionally, attention is directed to Ravkin ('807) which explicitly describes and defines a masking method which uses threshold image adjustments, multiple mask formations and adjusting image brightness values with the masks used (Col 11 line 65- Col 13 Line 10, Col 8 Line 10-55, Claims 13-17). Ravkin further discloses the preservation of specific targeted regions of the body through the use of sequential exposure using a modified illumination beam for the purpose of providing either two separate images or a combined image for thresholding and masking processing (Steps 5 and 6, Col 8 Line 6 – Col 9 Line 7, step 7.1 and 7.2) as well as identification of specific regions or clusters which are anatomically significant during the diagnostic procedure (Step 5, Col 8 Line 25-44). It would have been obvious to one of ordinary skill in the image processing and medical image diagnosis field to have incorporated the in vivo image acquisition system of Yokoi et al, and the specific outline of mask formation and adjustment of Ravkin with the image processing system of Le to allow for the analysis and processing of image data acquired internally of a patient's condition.

### ***Response to Arguments***

Applicant's arguments filed 6/4/08 have been fully considered but they are not persuasive. Regarding the argument that none of the disclosed references teaches a method of "preservation of anatomical structure is inherent", Examiner disagrees and also directs Applicant to portions of the primary reference for clarification. Even at the

most basic level (summary, Col 2 line 45-Col 4 Line 65) of the primary reference to Le ('942), the recitation is of a method which detects an edge feature having greater, or less intensity based on a threshold than neighboring portions of the image, and using processing methods to adjust the intensity of that image to preserve the edge feature (Col 1 Line 59- Col 2 Line 3 for motivations and purpose). Applicant's examples which are used in their remarks appear to designate that the "preservation of anatomical structures" specifically involves preservation of relative intensity (See "keep the darkness" and the accompanying portion of the text) while maintaining the shape of the anatomy. The portion of Column 1 - Column 2 in the background of the primary reference provides extremely similar motivations and purpose to their methods, and provide a detailed recitation of their intensity-based methods within the summary cited from columns 2 to 4. The adjustment can be to having either a higher or lower intensity (Col 2 Lines 5-30), and the smoothing and processing is designed to prevent blurring of the images and textures (Col 2 Lines 1-3). Examiner acknowledges the argument that "gathering statistics, such as..." is not taught by the Ravkin reference, but respectfully disagrees with Applicant. Ravkin applies a statistical test (thresholding) for statistic gathering in order to determine regions of interest and blob analysis for crease feature detection (step 7.1) and applies masks to gather image statistics in step 7.2 paragraphs 1-3, which include levels of intensity.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOEL M. LAMPRECHT whose telephone number is (571)272-3250. The examiner can normally be reached on Monday-Friday 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737

JML